



1 / 8

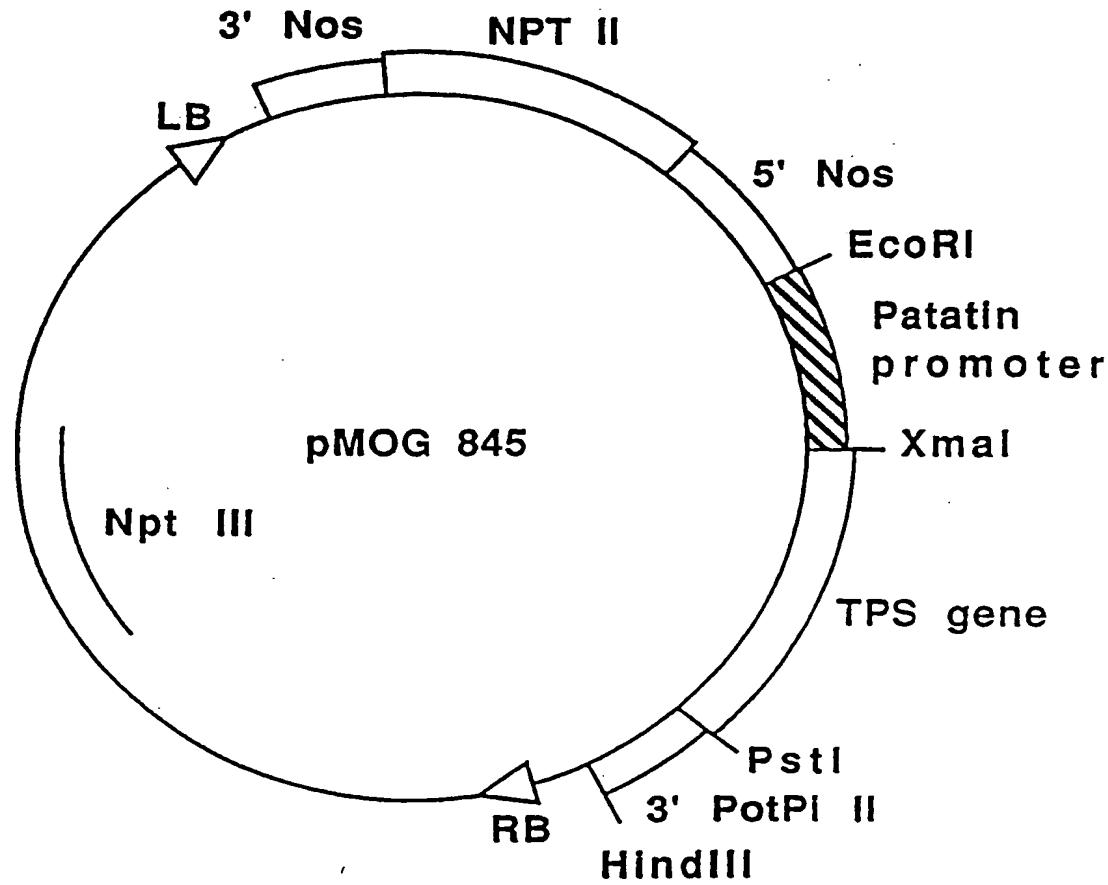


FIG. 1



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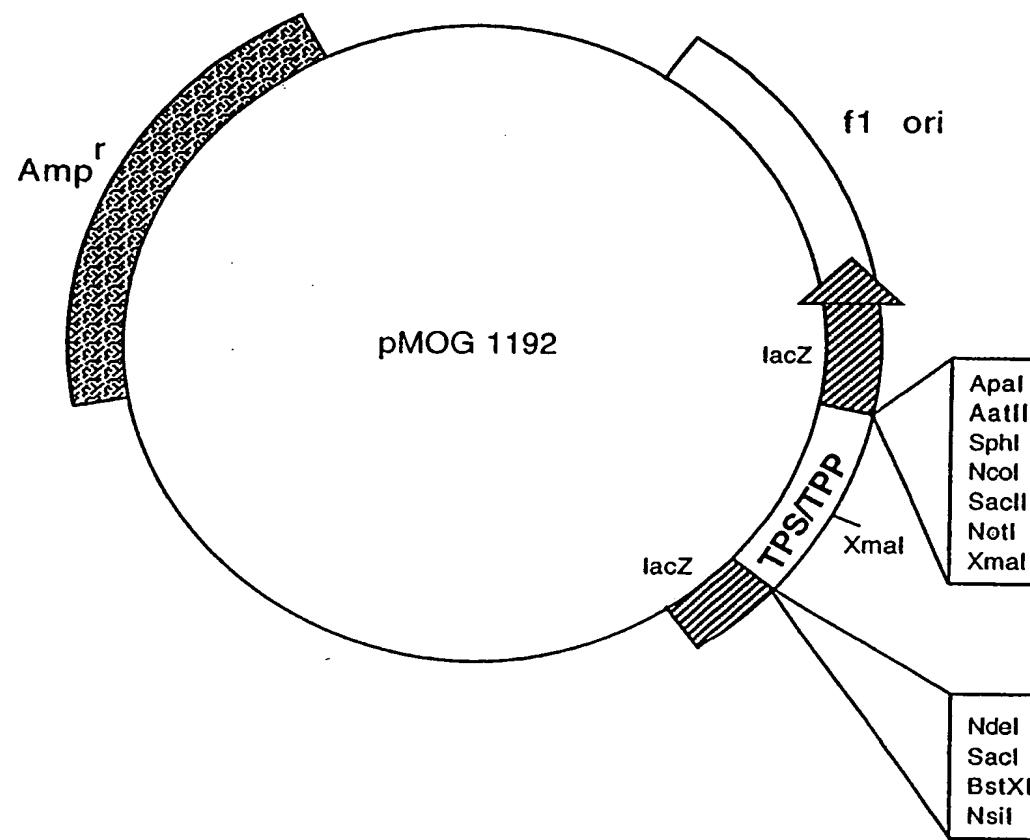


FIG. 2



08/779,460.
Replacement Sheet

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AA 238
|
Yeast P Y A V P G G R F N E L Y G W D S Y M N A L G L L E A N K T D V A R G M V
Rabbit P F I V P G G R F V E F Y Y W D S Y W V M E G L L L S E M A E T V K G M L
E. coli P Y V V P G G R F R E V Y Y W D S Y F T M L G L A E S G H W D K V A D M V
Silkw. G F I V P G G R F K E I Y Y W D A Y W I I E G L L I T D M T E T A K G M I
Tase25.....>
Tase24

.....>

AA

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|
Yeast E H F I F E I N H Y G K I L N A N R S Y Y L C R S Q P P F L T E M ..-
Rabbit Q N F L D L V T A Y G H / P N G G R V Y Y L Q R S Q P P L L T L M ..-
E. coli A N F A H E I D T Y G H / P N G N R S Y Y L S R S Q P P F F A L M ..-
Silkw. E N L I E L L Y K F G H / P N G S R W Y Y Q E R S Q P P L L A A M ..-
Tase26 <.....

AA 644

|
Yeast - - - - A A T E G F G W V T N A R Y I L L G L K Y M N - - -
Rabbit - - - - E V Q E G F G W T N G V A L M L L D - - -
E. coli - - - - P L Q D G F G W T N G V T L K M L D - - -
Silkw. - - - - V V Q S G F G W T N G V V L E F I N - - -
Tase27 <.....

FIG. 3



Comparison of trehalase sequences derived from different species

Ecoli2treh	1	MLNQKIQN PNPDELMIEV DLCYELDPYE
Ecolitreha		MKSPAPS RPQKMALIPA CIFLFCFAALS
Bommotreha		MRLF LLLVGLTTV.
Tenmotreha		MIPF LLMVAFADTV
Rabbitreha		MPGSTWELHL LLLLGLG...
Potatotreha		MGKAIIFM IFTMSMNMIK
Yeasttreha		MSVFDNVSPF KKTGFGKLQQ TRRGSEDDTY SSSQGNRRFF IEDVDKTLNE
Ecoli2treh	51	ELFEH
Ecolitreha		LKLDDEMIEAE PEPEMIEGLP ASDALTPADR YL...
Bommotreha		VQAEETPVTP QPPDILLG...
Tenmotreha		..IADDLPPT CIRPVY...
Rabbitreha		LQVSAQSQPS CDSKVY...
Potatotreha		LGSEQALPPP CESQIY...
Yeasttreha		AETCKSIDKG PVIPTT...
Ecoli2treh		LLAAEDTDKN YQITIEDTGP KVLKVGTA NS YGYKHINIRG TYMLSNLQ...
Ecoli2treh	101	150
Ecolitreha		VQSAKIFP... DSKTFP DCAPKMDPLD ILIRYRKVRR HRDF...
Bommotreha		VQNAKLPF... DQKTFA DAVPNSDPLM ILADYRMQQN QSGF...
Tenmotreha		VQMARLYP... DSKTFV DFQMRKDENA TLSAFQELLD RTNHNPTKED
Rabbitreha		VEMSRIFN... DSKTFV ELKMINDEQT TLENFDNFLR DTNHKRTRAD
Potatotreha		VQMARLYP... DDKQFV DMPLSTAPDQ VLQSFAELAA TYNTVPREQ
Yeasttreha		VQEAALQTYG HKGFDAKLFV DMSSLRESLSE TVEAFNKLPR VVNGSISKSD
Ecoli2treh		LTIAKSFGRH QIFLDEARIN ENPVNRLSRL INTQF... WNSLTRRVD
Ecoli2treh	151	200
Ecolitreha		LRKFVENHFW L... P EVYSSEYVSD PQN.SLKEHI
Bommotreha		LRHVFVNVNFT L... P KE.GEKYVPP EGO.SLREHI
Tenmotreha		LQEJVVDFFD E.TSELEEWK PDDHK..ENP P.FLAKIRDQ GFR.EFAKAL
Rabbitreha		LMKVFVSDNFK Q.ENEFESWT PTDFT..DNP T.LLSRIEDK TIR.QFAQDL
Potatotreha		LEKVFQEHFQ AVGQELESWT PGDWK..ESP Q.FLQKISDP KLR.AWAEQL
Yeasttreha		LDGFIGSYLS SPDKDLYVVE PMDFV..AEP EGFLPKVKNS EVR.AWALEV
Ecoli2treh		LNNVGEIAKD TKIDTPGAKN PRIYVPYDCP EQYEFYVQAS QMHPSLKLEV
Ecoli2treh	201	250
Ecolitreha		DQLWPVLTRP PQDHI...P WSSLLALPQ...
Bommotreha		DGLWPVLTRS TENTE...K WDSLLPLPE...
Tenmotreha		NDIWPTLARR VKPSVLEKPE QSSLVPMTH...
Rabbitreha		VKIWPTLARK VKKEVLDYPE HYSLLPVDN...
Potatotreha		HLLWKKLGKK IKPEVLSQPE RFSLIYSQH...
Yeasttreha		HSLWKNLSRK VADHVLEKPE LYTLLPLKN...
Ecoli2treh		EYLPKKITAE YVKSVDTPG LLALAMEEHF NPSTGEKTLI GYPYAVPGGR
Ecoli2treh	251	300
Ecolitreha		FSETYYWDSY FTMLGLAESG REDLLKCMAD NFAWMIENYG HIPNGNRTYY
Bommotreha		FREVYYWDSY FTMLGLAESG HWDKVADMVA NFAHEIDTYG HIPNGNRSYY
Tenmotreha		FKEIYYWDAY WIIEGLLITD MTETAKGMIE NLIELLYKFG HIPNGSRWYY
Rabbitreha		FTEFYYWDSY WIVEGLLLSD MHETVRGMLD NFLSIVEKYG FIPNGARVFY
Potatotreha		FVEFYYWDSY WMEGLLLSE MAETVKGMLQ NFDLVLATYG HIPNGGRVYY
Yeasttreha		FKEVYYWDSY WVIRGLLASK MYETAKGIVT NLVSLIDQFG VYLN GARVYY
Ecoli2treh		FNELYGWDSY MMALGLLEAN KTDVARGMVE HFIFEINHYG KII.NANRYY

FIG. 4A

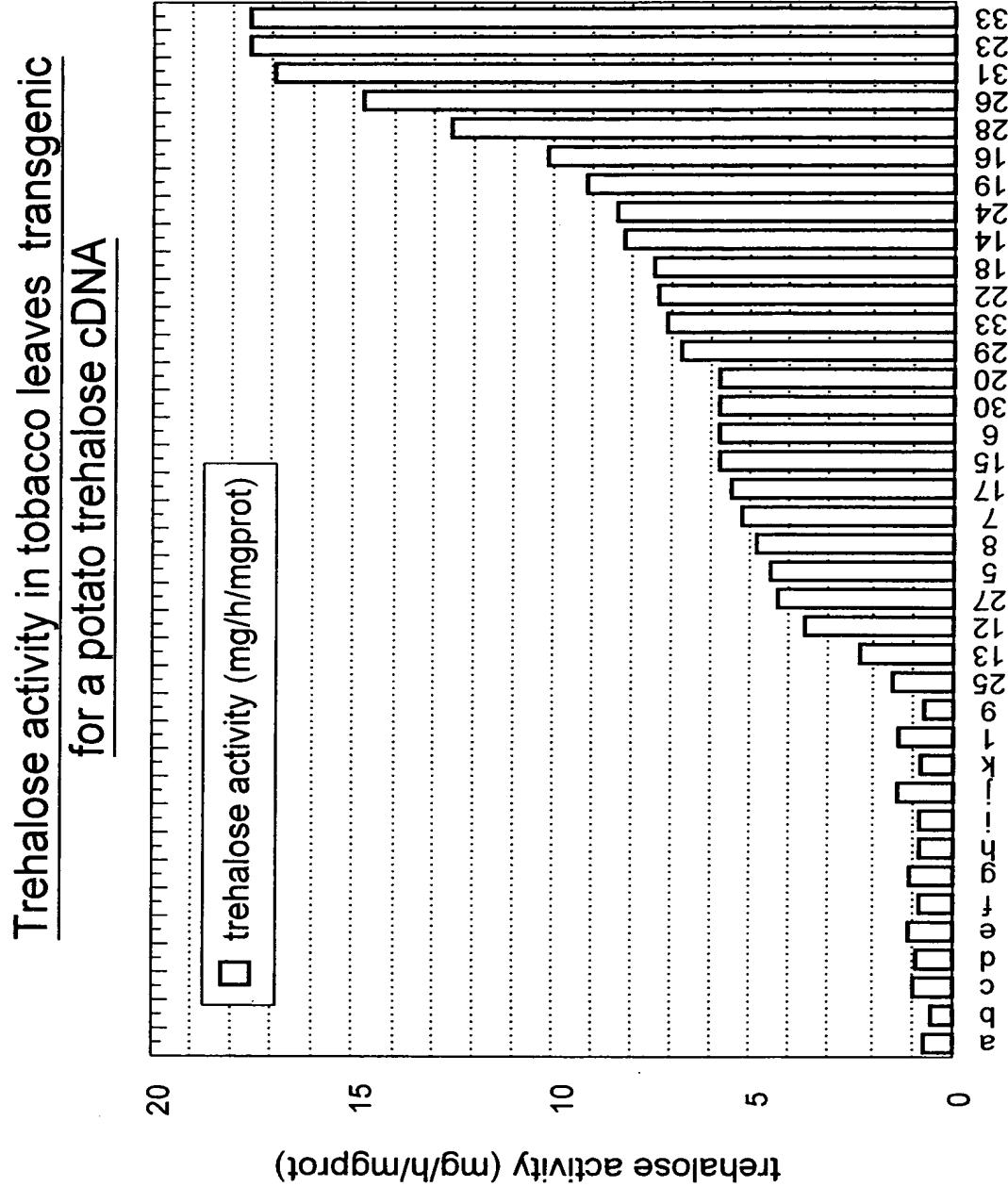


	301	350
Ecoli2treh	LSRSQPPVFA LMVELFEEDG VR.....GA .. RRYLDHLK MEYAFWMDGA	
Ecolitreha	LSRSQPPFFA LMVELLAQHE GD.....AA .. LKQYLPQMQ KEYAIVMDGV	
Bommotreha	QERSQPPLLA AMIKLYYEKT KD.....IE FIRKYISALE KELEYWLDT.	
Tenmotreha	LNRSQPPLLT LMVSLYVSAT ND.....ME WLAKNIRTID TELRFWLNN.	
Rabbitreha	LQRSQPPLLT LMMDRYVAHT GD.....LA FLRENIEITLA LELEDFWAEN.	
Potatotreha	SNRSQPPVLA TMIVDIFNQT GD.....LN LVRRSLPALL KENHFWNSGI	
Yeasttreha	LCRSQPPFLT EMALVVFKKL GGRSNPDAVD LLKRAFQASI KEYKIVWTAS	
	351	400
Ecoli2treh	ESLIPNQAYR HVVRMPDGSL LNRYWDDRTD PRDESWLEDV ETAK.HSG.R	
Ecolitreha	ENLQAGQQEK RVVKLQDGTL LNRYWDDRTD PRPESWVEDI ATAKSNPN.R	
Bommotreha	.HLIA..... FNKDRVXT LLRYYIPSAG PRPESYYEDY ELAQKLDKNT	
Tenmotreha	.RLVD..... VVKDGIVYK LAQYNSNSGS PRPESYYEDV TTASVFSDER	
Rabbitreha	.RTIS..... VSSGGNSHT LNRYHVPYGG PRPESYSKDT ELAHTLPEG.	
Potatotreha	HKVTI..... QDAQGSNHS LSRYYAMWNK PRPESSTIDS ETASVLPNIC	
Yeasttreha	PRL..... DPETG LSRYHPNGLG IPPETESDHF DTV.LLPYAS	
	401	450
Ecoli2treh	PPNEVYRDLR AGAASGW... .DYSSRWL.. RDTGRLA SIRTTQFIP.	
Ecolitreha	PATEIYRDLR SAAASGW... .DFSSRWM.. DNPQQLN TLRTTSIVP.	
Bommotreha	DPNDIYADLK SAAESGW... .DFSTRWFIS ESGDNGNLNT NLNTKNVIP.	
Tenmotreha	DKAELYMDLK SAAESGW... .DFSSRWIVD EYGGTRGNLS ALHTRRIIP.	
Rabbitreha	SWETLWAELK AGAESGW... .DFSSRWLVG . . SPNPDSLQ SIRTSKLVP.	
Potatotreha	EKRELYRELA SAAESGW... .DFSSRWM.. SNGSDLT TTSTTSILP.	
Yeasttreha	KHGVTLDEFK QLYNDGKIKE PKLDEFFLHD RGVRESGHDT TYRFEVGVCAY	
	451	500
Ecoli2treh	... IDLNAFL FKLESAIANI SALKGEKE.. TE ALFRQKASAR	
Ecolitreha	... VDLNSLM FKMEKILARA SKAAGDNA.. MA NQYETLANAR	
Bommotreha	... VDLNAIF AGALQITANF QAILKNPR.. RA AHWGYMAEQW	
Tenmotreha	... VDLNAFL CQAFQKLSEF YOTLGDYP.. NA TFWSKLVKIW	
Rabbitreha	... VDLNAFL CQAEELLSGF YSRLGNES.. QA TKYRNLRAQR	
Potatotreha	... VDLNAFL LKMEEDIAFL ANLVGESS.. TA SHFTEAAQNR	
Yeasttreha	LATIDLNSLL YKYEIDIADF IKEFCDDKYE DPLDHSITTS AMWKEMAKIR	
	501	550
Ecoli2treh	RDAVNRYLWD DENGIVYRDYD WRREQL..... A LFSAAAIVPL	
Ecolitreha	QKGIEKYLWN DQQGQWYADYD LKSHKV..... RN QLTAAALFPL	
Bommotreha	RSSIEQALWD EEDGVWHDYD ILNNK..... PRR YFYTSNLAPL	
Tenmotreha	QHSIEMVHYN RDDGIWYDWD NELSQ..... HRR MFFPSNFAPL	
Rabbitreha	IAALTALLWD EDKGAWFDYD LENQK..... KNH EFYPSNLTPL	
Potatotreha	QKAINCIFWN AEMGQWLDYW LTNSDTSEDI YKWEDLHQNK KSFASNFVPL	
Yeasttreha	QEKITKYMWD DESGFFF DYN TKIKH..... RTS YESATTFWAL	
	551	600
Ecoli2treh	YVGMANHEQA DRLANAVRSR LLT..... P GG... ILASE YETGEQWDKP	
Ecolitreha	YVNAAAKDR A NMATATKTH LLQ..... P GG... LNTTS VKSGQQWDAP	
Bommotreha	WMNAVEKPFL AKH GARVLEY LHE S QALEYP GG... VPVSL VNSGEQWDFP	
Tenmotreha	WSETFD S RNA E ILGEMAAEY FITQNMMDYH GG... IPTSL SHTGEQWDYP	
Rabbitreha	WAGCFSDPAI A... DKA LOY LQD S QI LNR H G... IPTSL QNTGQQWDFP	
Potatotreha	WTE. ISCSDN NITTQKVQ S LMSSGLLQ. P AG... IAMTL SNTGQQWDFP	
Yeasttreha	WAGLATKEQA QKMVEKALPK LEMLGLAAC TERSRGPI SI SRPIRQWDYP	



	601	650
Ecoli2treh	NGWAPLQWMA IQGFKMYG..	DDLLGDEIA RSWLKTVNQF YLE.QHKLIE
Ecolitreha	NGWAPLQWVA TEGLQNYG..	QKEVAMDIS WHFLTNVQHT YDR.EKKLVE
Bommotreha	NAWPPEVSIV VTAIQNIGSE	ESSKLAKELA QWWRACKSG FTE.KKQMFE
Tenmotreha	NAWPPMQSII VMGLDKSGSY	RAKQLARELA RRWVKANLIG FRQ.TGEMFE
Rabbitreha	NAWAPLQDLV IRGLAKPSA	RTQEVAFQLA QNWIRTNFDV YSQ.RSAMYE
Potatotreha	NGWPPLQHII IEGLLRSGLE	EARTLAKDIA IRWLRTNYVT YKK.TGAMYE
Yeasttreha	FGWAPHQILA WEGLRSYGYL	FVDYNGIVVE
	651	700
Ecoli2treh	KYHIADGVPR EGGGGEYPLQ	D GFGWTNG... VVRRLIGLYG
Ecolitreha	KYDVSTTGT. GGGGGEYPLQ	D GFGWTNG... VTLKMLDLIC
Bommotreha	KYDALNAGKY .GGGGGEYTVQ	D GFGWSNG... VVLEFLDRYG
Tenmotreha	KYNVEVPQON .GGGGGEYVVQ	S GFGWTNG... VVLEFINQFF
Rabbitreha	KYDISNA.QP .GGGGGEYEVQ	E GFGWTNG... VALMLLDRYG
Potatotreha	KYDVTKCGAY .GGGGGEYMSQ	T GFGWSNG... VVLALLEEFG
Yeasttreha	KYDVTRGTDP HRVEAEYGNQ GADFKGAATE GFGWVNARYI LGLKYMNSYE	
	701	732
Ecoli2treh	EP.....	
Ecolitreha	PKEQPCDNVP ATRPTVKSAT TQPSTKEAQP TP	
Bommotreha	AVLTSVDSVD ASANNGQSNE ESETDSKEK. ..	
Tenmotreha	TT.....	

F I G. 4C



5 | G



Trehalose accumulation in microtubes

trehalose
mg.g⁻¹ fresh weight

pMOG1027 (845-11)		pMOG1027 (845-22)		pMOG1027 (845-28)	
9a	0.08	7a	0.02	3a	0.04
9b	0.21	7b	0.01	3b	0.15
11a	0.01	9a	0.02	15a	0.4
11b	0	9b	0.02	15b	ND
...		12a	0.09	18a	0
...		12b	0	18b	0.2
...		15a	0	26a	0.12
...		15b	0.01	26b	0.22
...		32a	0.01	27a	0.02
...		32b	0	27b	0.01
...		34a	0.01	31a	0.2
...		34b	0.01	31b	0.1
...		36a	0.01	34a	0.48
...		36b	0	34b	0.75
				38a	0.08
				38b	0.12
N= 25		N= 30		N= 29	

FIG. 6